

$$\begin{matrix} 1 & 5 & 12 & 22 \\ (1) & (2) & (3) & (4) \end{matrix} \rightarrow 2a = 3 \rightarrow a = 1, 5, 12, 22 \rightarrow a_n = an^2 + bn + c$$

$$\begin{aligned} a_1 &= 1 \times 1^2 + b + c = 1 \rightarrow b + c = 0 \quad \text{--- (1)} \\ a_2 &= 1 \times 2^2 + 2b + c = 5 \rightarrow 2b + c = 3 \quad \text{--- (2)} \end{aligned}$$

$$\begin{aligned} (1) \times (-1) &\rightarrow -b - c = 0 \quad \text{--- (3)} \\ (2) + (3) &\rightarrow -c = 3 \rightarrow c = -3 \quad \text{--- (4)} \\ (1) + (4) &\rightarrow b = 3 \quad \text{--- (5)} \end{aligned}$$

$$a_{10} = 1 \times 10^2 + (3 \times 10) + (-3) = 107 \quad \checkmark$$

$$\begin{matrix} 0 & 1 & 3 \\ (1) & (2) & (3) \end{matrix} \rightarrow 2a = 1 \rightarrow a = 0.5$$

$$\begin{aligned} a_1 &= 0 \rightarrow 0.5 \times 1^2 + b + c = 0 \rightarrow 0.5 + b + c = 0 \rightarrow b + c = -0.5 \quad \text{--- (1)} \\ a_2 &= 1 \rightarrow 0.5 \times 2^2 + 2b + c = 1 \rightarrow 2 + 2b + c = 1 \rightarrow 2b + c = -1 \quad \text{--- (2)} \end{aligned}$$

$$\begin{aligned} (1) \times (-1) &\rightarrow -0.5 - b - c = 0.5 \quad \text{--- (3)} \\ (2) + (3) &\rightarrow -c = -1.5 \rightarrow c = 1.5 \quad \text{--- (4)} \\ (1) + (4) &\rightarrow b = -1 \quad \text{--- (5)} \end{aligned}$$

$$-0.5n^2 - 0.5n + 1.5 = 0 \rightarrow n = 1 \quad \checkmark$$

$$\begin{matrix} 5 & 13 & 21 \\ (1) & (2) & (3) \end{matrix} \xrightarrow{\text{جمله عمومی}} \Delta n - 3 \xrightarrow{\Delta} \Delta x 11 - 3 = \Delta \quad \checkmark$$

$$\begin{matrix} 5 & 9 & 13 \\ (1) & (2) & (3) \end{matrix} \xrightarrow{\text{جمله عمومی}} \varepsilon n + 1 \xrightarrow{\Delta} \varepsilon x 11 + 1 = \varepsilon \quad \checkmark$$

$$a_n = \frac{(-1)^n}{n} \quad \left\{ \begin{aligned} \text{جمله ک} &= a_1 = \frac{(-1)^1}{1} = -1 \\ \text{جمله ب} &= a_2 = \frac{(-1)^2}{2} = \frac{1}{2} \end{aligned} \right\} \quad \frac{1}{2} - (-1) = \frac{1}{2} + 1 = \frac{3}{2} = 1.5 \quad \checkmark$$

$$b_n = (-3)^n - vn \rightarrow b_3 = (-3)^3 - v \times 3 = -27 - 3v$$

$$a_n = -an + 22 \rightarrow -ak + 22 = -27 - 3v \rightarrow 22 + 49 = ak \rightarrow 71 = ak \rightarrow k = 71 \quad \checkmark$$

$$t_{10} - t_v = 1P \rightarrow t_v + r_d - t_v = 1P \rightarrow r_d = 1P \rightarrow d = \mathcal{E}$$

$$t_4 - t_1 = ? \rightarrow \cancel{t_1} \text{ ad } t_1 = ? \rightarrow \omega \times \varepsilon = \boxed{10^{10} \text{ s}}$$

$$\begin{matrix} \text{I} & \text{II} & \text{III} & \text{IV} \\ \text{r} & \text{v} & \text{I} & \text{I} \\ \text{I} & \text{I} & \text{I} & \text{I} \end{matrix} \quad \begin{matrix} \text{I} & \text{II} & \text{III} & \text{IV} \\ \text{r} & \text{v} & \text{I} & \text{I} \\ \text{I} & \text{I} & \text{I} & \text{I} \end{matrix}$$

$$(1) \xrightarrow{\varepsilon} (\mu) \xrightarrow{\varepsilon} (\mu) \xrightarrow{\varepsilon} (f)$$

$$\begin{array}{c} p \\ (1) \end{array} \xrightarrow{\text{Griff. No.}} \begin{array}{c} 11 \\ (p) \end{array} \xrightarrow{\Lambda n - \omega}$$

$$t_n = \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \frac{1}{7}, \frac{1}{8}, \frac{1}{9}, \frac{1}{10}, \frac{1}{11}, \frac{1}{12}, \frac{1}{13}, \frac{1}{14}, \frac{1}{15}, \frac{1}{16}, \frac{1}{17}, \frac{1}{18}, \frac{1}{19}, \frac{1}{20}$$

$$t_n = 4, 9, 9, 4, 0, \dots \quad t_n = A n^r + B n$$

$$\begin{array}{ccc} +r & +0 & -r & -y \\ -r & -r & -r & \end{array} \rightarrow r_a = -r \rightarrow a = -1/a$$

$$q_1 = q \rightarrow -1/a \times 1^r + B = q \rightarrow B = \overline{1/a}$$

$$\mu_A + \omega B = \mu_X(-\cancel{\omega}) + \omega \cancel{\mu_X} = \mu_{Y,\omega} - \epsilon, \omega = \boxed{\mu_Y}$$

$$z_n = -\frac{q}{r} - \varepsilon, 0, \dots \quad z_n = a n^r + b n + c \quad \left. \begin{array}{l} q = |x|^r + b + c = -q \\ q = |x|^r + r b + c = -\varepsilon \end{array} \right\} \rightarrow \begin{array}{l} b = -1 \\ c = -q \end{array}$$

$$\epsilon_r = r_1, \epsilon_f = \epsilon_1 \rightarrow r_1 + r_d = \epsilon_1 \rightarrow d = a$$

$14, 11, 14, 11, 14, \dots, 14, 11$

$y \rightarrow 1x n^r + (-b) + (c)$
 $\downarrow \quad \downarrow$
 $-1 \quad -4$
 $n = 9$